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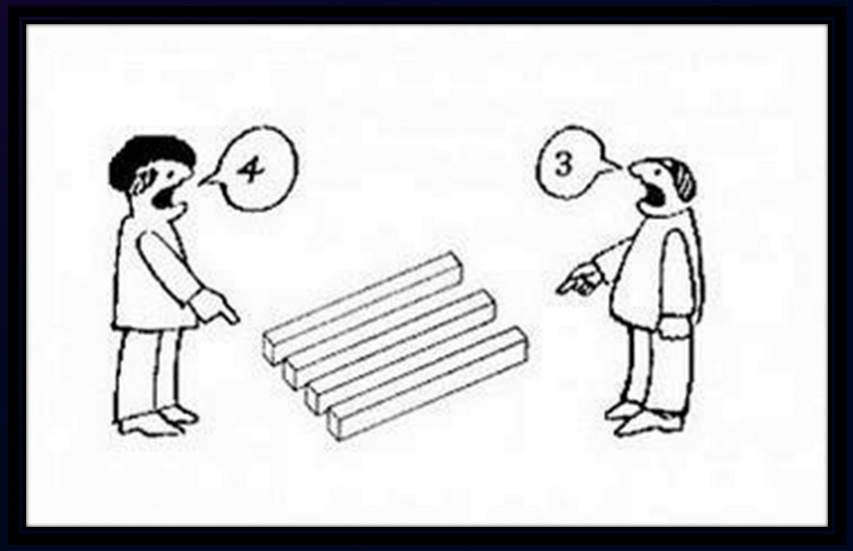
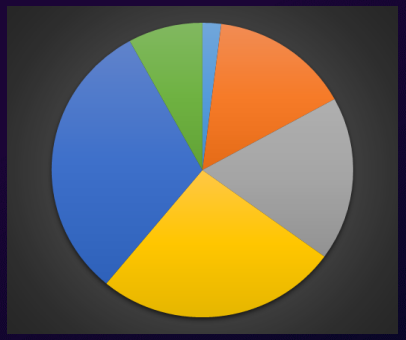
Missed Communication

How can we ensure that everyone has the same perspective so that the right decision can be made ?



Why is it important?



100%

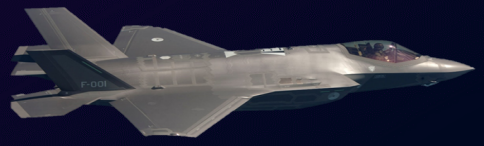
of our 3D *data*

is created and consumed in a two dimensional media, photographs, CAD, video, drawings, and more …

Less Than 2%

of our 3D data

is available for viewing in three dimensional media due to cost and accessibility limitations.



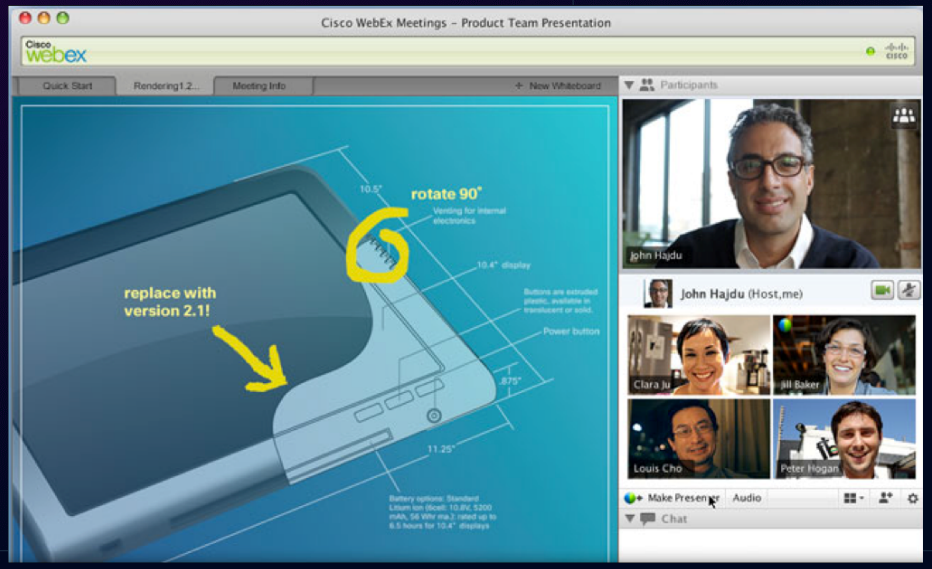
Billions of $

are wasted

because decisions where made without the proper understanding or the lack of true perspective

What is the challenge?

Web conferencing tools are easily accessible, but they do not provide sufficient understanding of 3D geometry

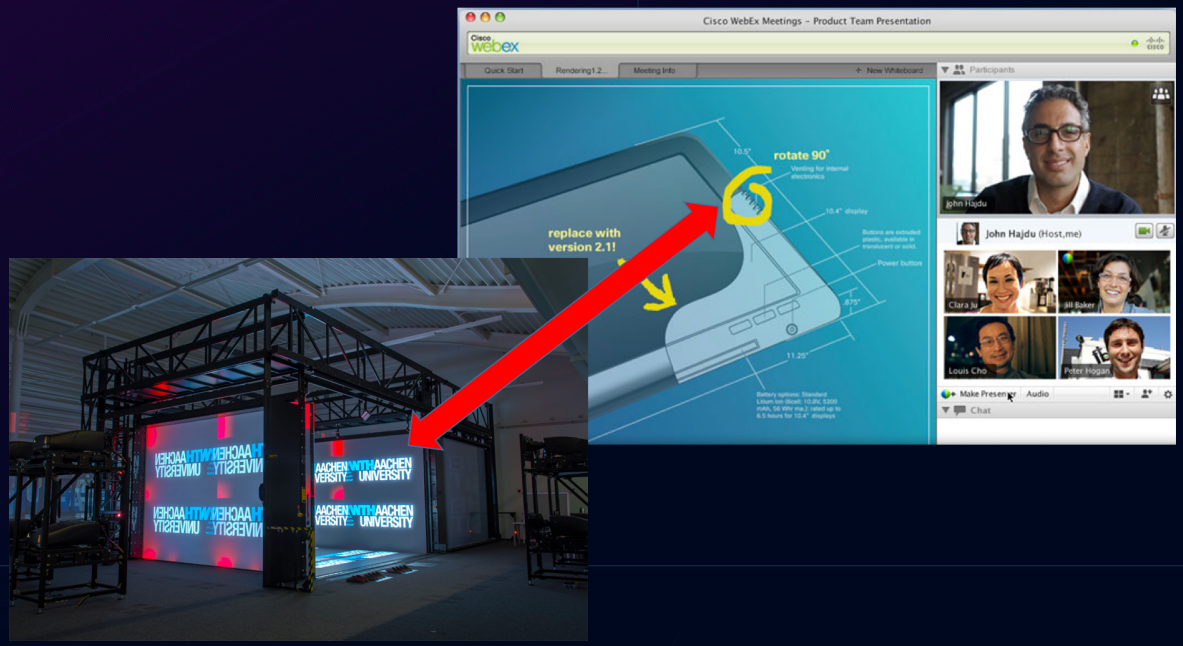


What is the challenge?

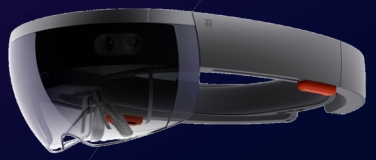
Virtual Reality caves and powerwalls provide the true understanding of 3D geometry, but they are not easily accessible

What if?

You could provide the power of immersive virtual reality with the accessibility of web conference?



IQ3 IS AN AR/VR COLLOBORATION PLATFORM



3D EXPERIENCE

(immersive, realistic, accurate, interactive)

COLLABORATION

(enterprise / cloud, device, and platform agnostic)

WORKFLOWS

(sales & marketing, engineering, support, training, medical, architectural, etc.)

desktop

mobile

Challenges in Engineering Use

- Designing a engineering user Interface
- Making the data processing easy and reliable
- Scalable for collaboration

Challenges in Engineering Use

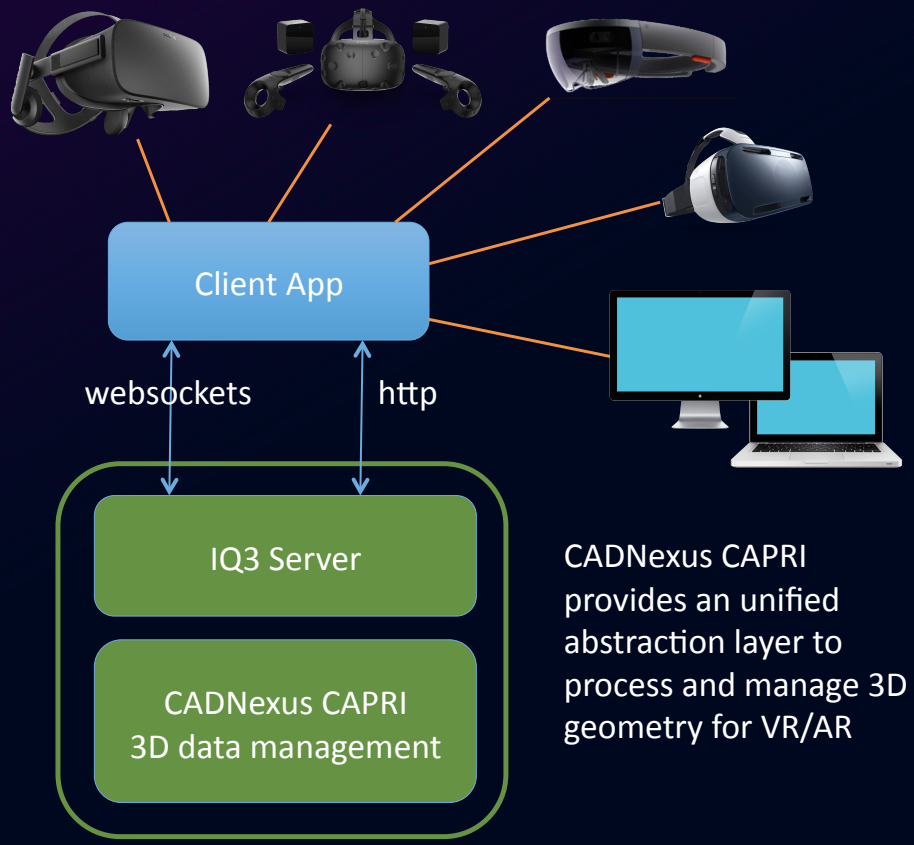
- Creating a useful engineering interface in VR
  - Smooth experience with HMD/AR devices is tricky
  - What functionality makes sense – can't dump typical desktop in VR
  - Easy process to process and display 3D data in a production environment
  - Simple and reliable user interaction
  - Real-time collaboration with team members

Challenges in Engineering Use

- 3D CAD data is complex in geometry and structure
  - Large number of bodies (10,000+)
  - Complex topology and geometry (many surfaces)
  - Corrupted/bad geometry
  - Knowledge of assembly structure and meta data is required
  - Maintain link/persistence with original CAD/ manufacturing data (typically lost in typical VR pipeline)

IQ3 Architecture

- Client-Server architecture
- Standard Client is browser, other clients can be supported (unity, desktop, etc.) Javascript
- IQ3 Server uses websockets + apache
- IQ3 Model server uses CADNexus CAPRI for handling 3D geometry
- Easy to deploy in a managed IT environment/enterprise

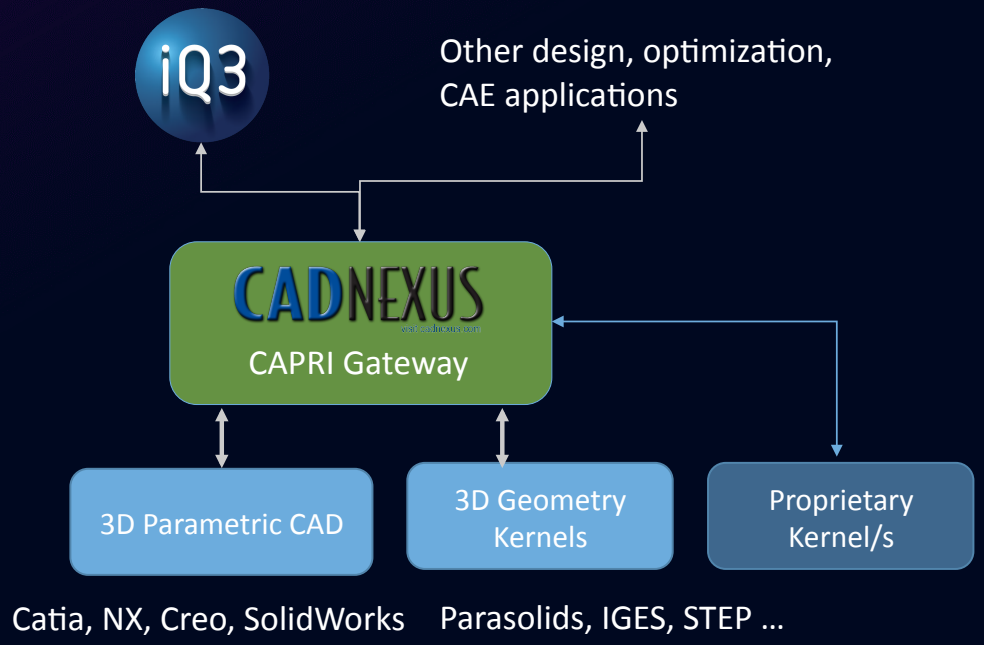


CADNexus CAPRI provides an unified abstraction layer to process and manage 3D geometry for VR/AR

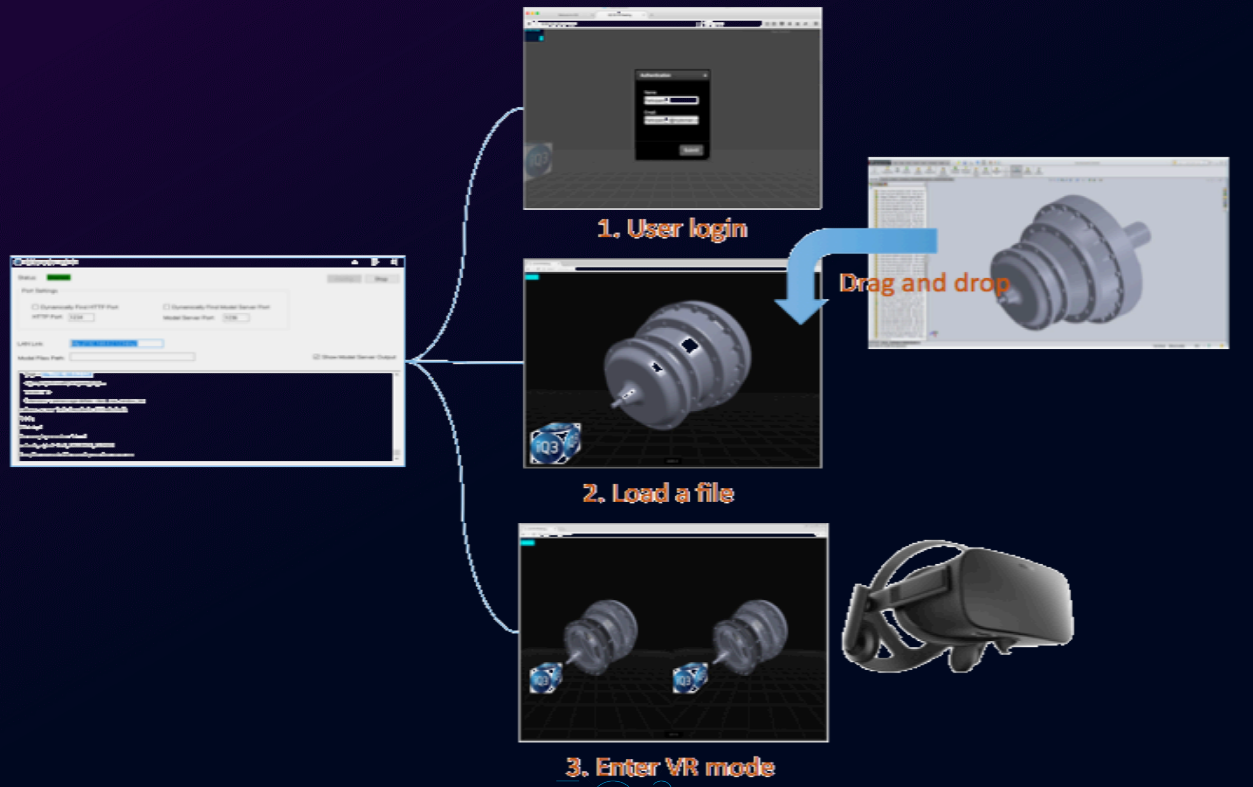
3D CAD – Catia, NX, SolidWorks, Creo etc.
Point cloud from scans, lidar, etc.

CADNexus CAPRI Overview

- CAPRI CAE Gateway is a middleware abstraction layer for 3D CAD and CAE data. It was developed at MIT with NASA, DoD, & aerospace industry
- CAPRI provides the geometry foundation for IQ3
- SOA architecture makes it easy to deploy in a PLM environment
- Eliminates heavy, vendor specific, integration with 3D CAD and geometry kernels, reducing cost and exposure to changes in CAD
- It is modular and extensible to add support for new 3D formats
- Easy to use API designed for engineering application development
- Fast, robust processing of complex CAD data



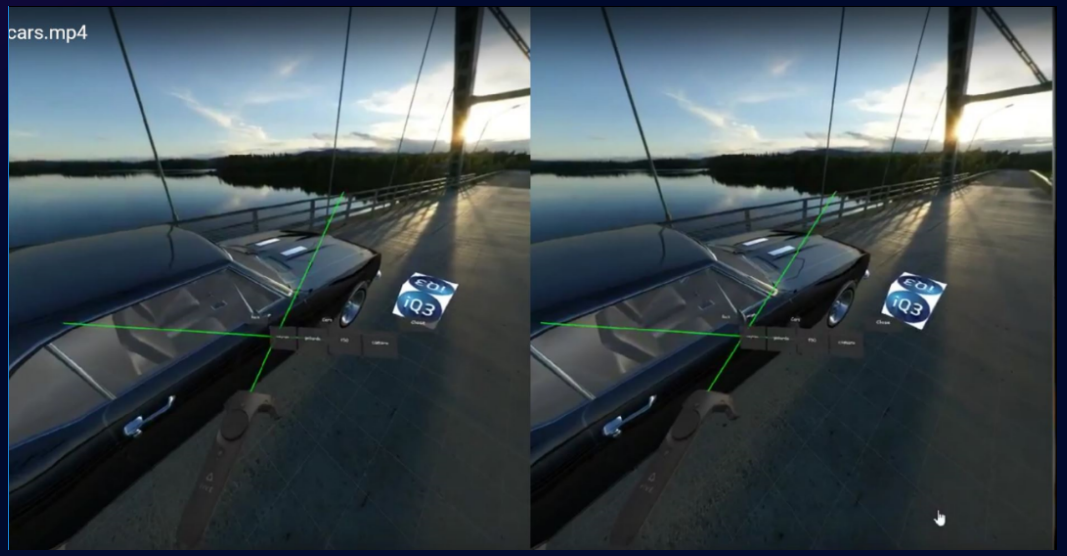
Workflow from CAD to VR



Use Cases

IMMERSIVE

Empower your team with an immersive virtual reality environment. Enabling visualization and manipulation of your 3D data in a true 1-to-1 scale.



COLLABORATIVE

Combining the power of immersive VR with the collaboration of web conferencing, iQ3's VR platform enables users from all over the world to collaborate in a single VR session, from any device.

PARTNER COLLABORATION

Greatly reduce travel costs by solving problems remotely.

Head-Mounted Display

Desktop or Laptop

Or even a cell phone

View in VR

• Share • Collaborate • Solve problems • Meet deadlines and more …..

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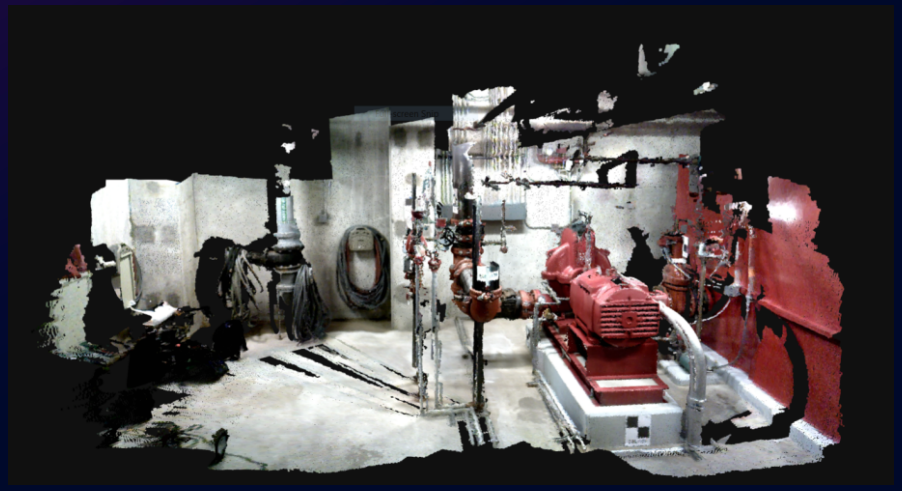
Scan-to-VR, with CAD Import

iQ3 can import .ply and .dp point cloud files to bring your scanned data into a Virtual Reality environment. iQ3 can also import your CAD geometry into the same environment as your scanned data.



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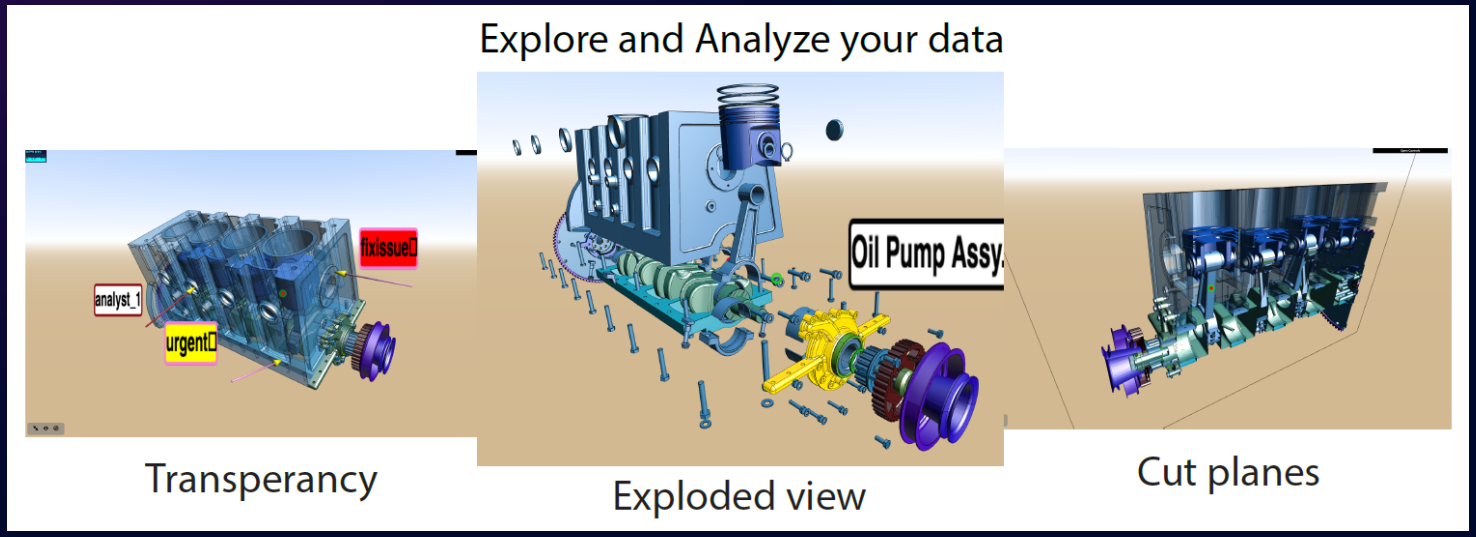
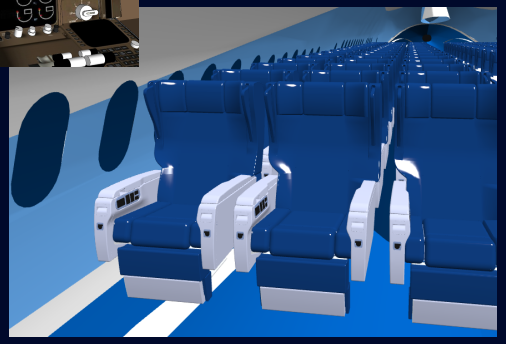
Use Cases: Design Review

Empower your team with the power of real 1:1 scale 3D.
Not only can you hold design reviews remotely in an immersive 3D environment, but your teams can collaborate to solve a majority of design issues before the meeting actually begins, saving time to answer the critical decisions.



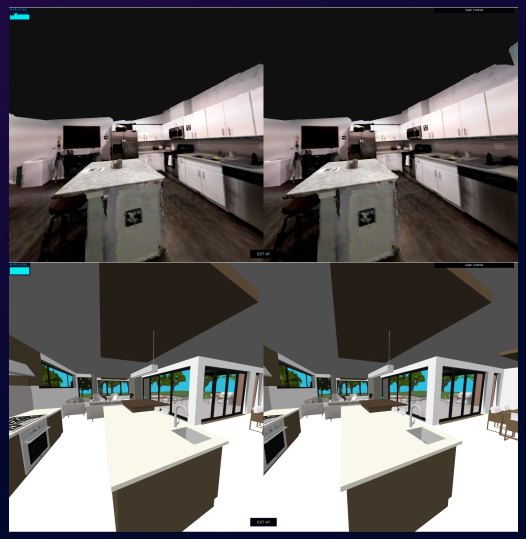
Use Cases: Visibility and Human Factors

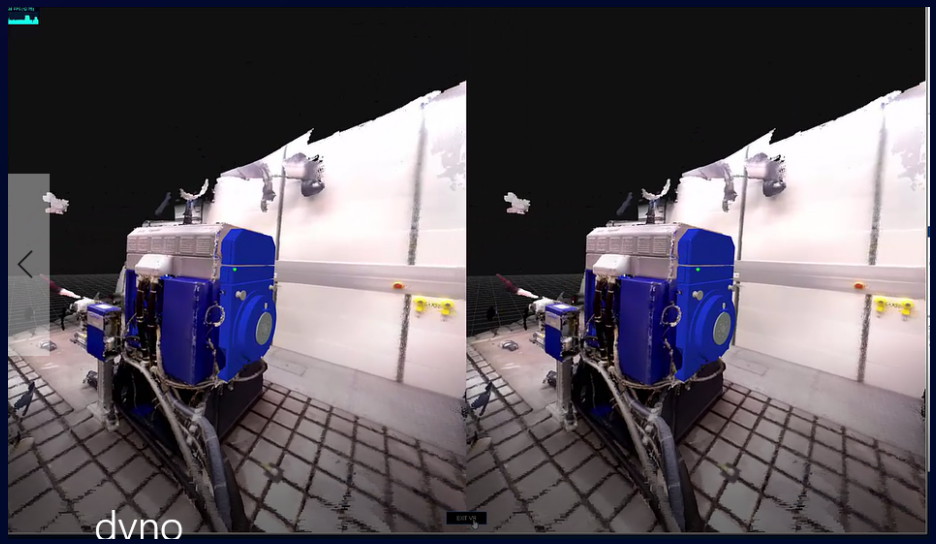
Using iQ3's immersive VR environment, designers and engineers can analyze operator visibility and other human factors early in the design cycle, before any physical prototype is built



Use Cases: Facility Layout, Retrofit, Walkthrough

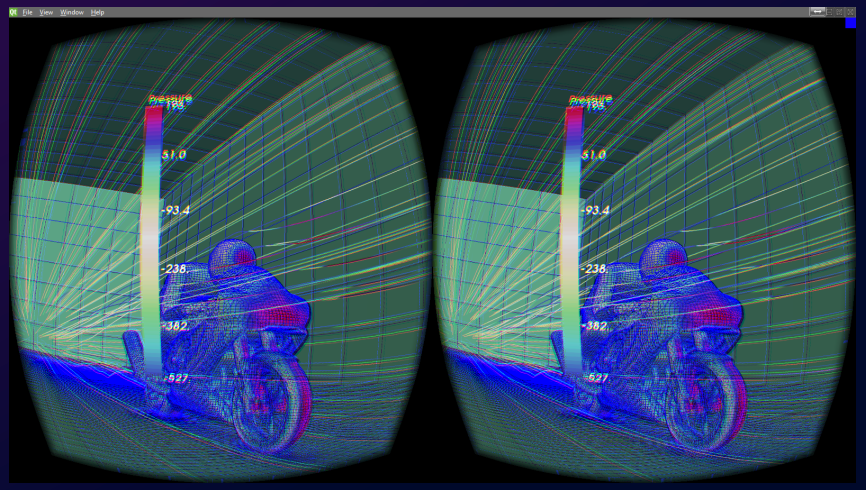
Using both scan and CAD data, iQ3 enables teams to accurately design and plan for facility layouts and retrofits. Avoid travel costs while still gaining the perspective and insights of a site visit through a virtual walkthrough.

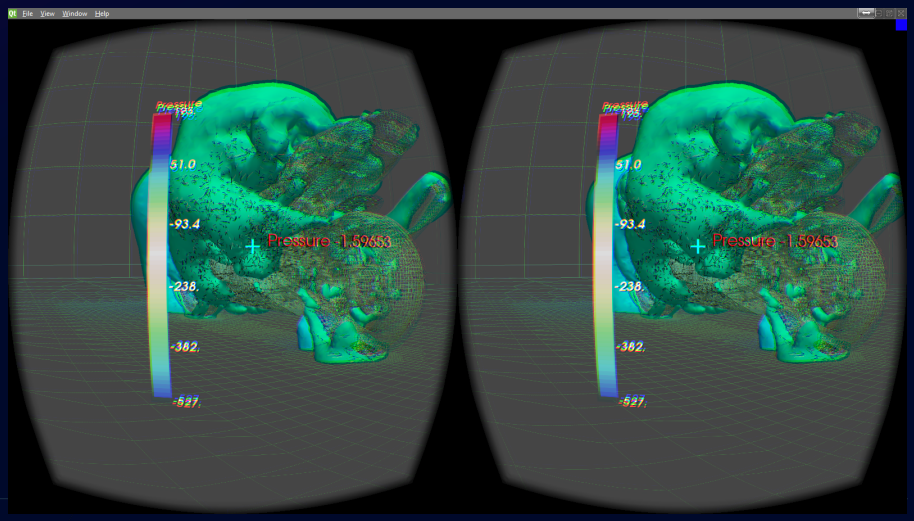




Use Case: CFD Visualization

The complex 3D nature of fluid flow is not easily captured and communicated with 2D medium. Import CFD results into iQ3 to provide real-time VR visualization of your results, generate streamlines and isocontours, and uncover troublesome flow patterns.





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